

REMARKS

The presently submitted application is a continuation application of U.S. Patent Application No. 09/855,337. The specification is amended to reflect this status accordingly.

Independent claims 1, 45 and 53 are amended to clarify that the "functionally available" limitation on the cyclodextrins of the instant claims applies at the surface of the substrate which has the unwanted molecules intended to be captured. Support for this Amendment is found throughout the specification, for example, on page 1 of the specification beginning at line 31. Claim 45 is further amended to clarify that the recited cyclodextrin-incompatible material is maintained in molecular aggregates prior to the addition of cyclodextrin, as disclosed in the present specification at page 23, lines 29-32, and to clarify that the composition suitable for capturing unwanted molecules from a surface comprises functionally available cyclodextrin, as taught throughout the present specification.

As the present amendments do not constitute an addition of new matter, entry is believed to be in order and is respectfully requested. The present Amendment, taken with the accompanying remarks are believed sufficient to establish the patentability of the claims and place the present application in condition for allowance. An early allowance is respectfully requested.

Claims 1-58 are pending in the application and subject to examination.

Instant independent claim 1 is directed to a composition suitable for capturing unwanted molecules from a surface. The composition comprises functionally-available cyclodextrin and a cyclodextrin-compatible surfactant selected from the group consisting of castor oil surfactant, polyethoxylated fatty alcohol surfactant, polypropoxylated fatty alcohol surfactant, glycerol mono-fatty acid ester surfactant, polyethylene glycol fatty acid ester

surfactant, polypropylene glycol fatty acid ester surfactant, fluorocarbon surfactant, and mixtures thereof; wherein the concentration of functionally-available cyclodextrin, as applied to the surface, is at least about 0.001%.

Applicants note that the "comprising" language of claim 1 may allow the presence of additional components, however, Applicants point out that this inclusive term still only permits inclusion of components which comport with the functional recitation of the claim, that is, the CD must be "functionally available" at the surface.

Applicants note that the present specification defines "functionally available CD" as referring to CD "that is either not complexed with other materials, or is complexed with materials that only weakly complex with CD, e.g. weakly complexing materials that have a CD complexation constant of less than about $5,000 \text{ M}^{-1}$." Hence, by definition, the presence of a strongly complexing material accessible to the cavity of the uncomplexed or weakly complexed CD defeats functional availability. Any materials with a weaker complexation constant will ultimately be displaced from the CD cavity by a material with a higher complexation constant. Hence, merely because a composition contains some CD bound to weakly complexing molecules, that CD is not functionally available since as soon as the bound molecule leaves the CD cavity, the cavity will be competitively occupied by the stronger complexing material and will not be available to capture unwanted molecules at the surface of a substrate. Therefore, a composition comprising molecules available to complex strongly with CD does not meet the functional requirement of the instant independent claims.

In addition, the instant independent claims explicitly require that the CD be functionally available, not just when added to the composition, but at the surface of the

substrate from which unwanted molecules are captured. Hence, it is not enough merely for a composition to be formulated with uncomplexed or weakly complexed CD, and it is not enough for an uncomplexed or weakly complexed CD to exist in the composition. The CD must exist in the composition, at competitive equilibrium with the other components of the composition, such that they are functionally available *to bind with unwanted molecules* on a surface. If they bind, instead, with strongly complexing molecules present in the composition itself, prior to contact with a surface, then they are not functionally available as presently defined and required.

Present independent claim 45 is directed to a process of manufacturing a composition suitable for capturing unwanted molecules from a surface comprising the steps of: (a) providing cyclodextrin, a cyclodextrin-compatible surfactant, and a cyclodextrin-incompatible material; (b) combining the cyclodextrin-compatible surfactant and the cyclodextrin-incompatible material to form a first mixture, wherein the cyclodextrin-incompatible material is maintained in molecular aggregates in the first mixture; and (c) subsequently combining the cyclodextrin with the first mixture to form the composition suitable for capturing unwanted molecules from a surface, wherein the composition comprises functionally available cyclodextrin.

As taught on in the present specification at page 23, bridging to page 24, the process embodiment of claim 45 provides a formulation process whereby components that previously were omitted from CD compositions because they would competitively bind with the CD, may be included in CD compositions such that the CD remains functionally available and the composition is suitable for capturing unwanted molecules. Specifically, as disclosed in the

specification at page 23, lines 11-13, compositions can be carefully formulated to comprise both CD-incompatible materials and functionally available CD.

Applicants are not asserting that compositions comprising both CD-compatible and CD-incompatible materials, or processes for making them, are novel, or that the formation of molecular aggregates from such mixtures is novel. However, Applicants discovery that mixing certain CD-compatible and CD-incompatible materials together prior to the addition of CD, such that the CD-incompatible materials are maintained in molecular aggregates and not accessible to the cavity of the CD, thereby permitting the formulation of compositions comprising both CD-incompatible material and functionally available CD, *is* novel and patentably distinguishable over the known art. In summary, Applicant's invention provides embodiments for formulating compositions capable of exploiting the beneficial characteristics of CD-incompatible materials and functionally available CD in the *same* composition.

It is believed that the present amendment, taken with the accompanying remarks, is sufficient to place the present application in condition for allowance. An early allowance is therefore respectfully requested.

Respectfully submitted,

By: 

Denise M. Everett
Registration No. 47,552
Attorney for Applicants
Dinsmore & Shohl LLP
1900 Chemed Center
255 East Fifth Street
Cincinnati, OH 45202
(513) 977-8787